Response to Public Comments on the
New Source Review Permit 092018-002A for
Nucor Steel Sedalia LLC (County Plant-ID: 159-0078)
Project 2020-07-004

This document is a response to comments made on the draft amendment for Significant Deterioration (PSD) New Source Review Permit 092018-002A, Project 2020-07-004, for a true-up as-built evaluation of Permit 092018-002. The Nucor Steel Sedalia LLC (Nucor) PSD amendment permit 092018-002A was placed on public notice as of December 31, 2020, for a 40-day comment period. The public notice was published on the Missouri Department of Natural Resources' Air Pollution Control Program's web page at: https://dnr.mo.gov/env/apcp/permit-public-notices.htm.

In some cases, comments have been abbreviated or paraphrased here for the sake of clarity or brevity. Comments regarding grammatical errors were addressed and corrected for the final amendment. The original comments may be read in full in the Attachments. Please note that the numbers of Special Conditions and page numbers from the draft permit may have changed. The numbers referenced in the response reflect the final Special Condition numbering and page numbering.

On January 5, 2021, the Air Pollution Control Program (APCP) received comments from Beth Kroes, Environmental Specialist, Missouri Department of Natural Resources (MDNR) Northeast Regional Office. On January 28, 2021, the Air Pollution Control Program received comments from Amy Algoe-Eakin, Chief Air Permitting and Standards Branch EPA Region 7. Air Pollution Control Program did not receive any other comments on the draft PSD amendment while it was on public notice.

The comments from the Northeast Regional Office and EPA are addressed below.
The following comments were submitted to the Air Pollution Control Program by MDNR Northeast Regional Office on January 5, 2021

MDNR Northeast Regional Office – Comment #1 In the opening paragraph (or a separate summary paragraph), I would recommend a sentence or two about the changes being made to the other special conditions of the original permit, in addition to SC 17B. That way someone new to reading the amendment can be aware that revisions to SC 17B isn’t the only focus.

MDNR APCP Response: MDNR APCP has added language to the opening paragraph describing where to easily find what Special Conditions of permit 092018-008 are being superseded.

MDNR Northeast Regional Office – Comment #2 Page 1: Table 2, insert a Serial Numbers column as indicated by the table name and info submitted

MDNR APCP Response: MDNR APCP has modified Table 2 to include Serial Numbers to accommodate the request.

MDNR Northeast Regional Office – Comment #3 Page 10: I would assume SC 17 of the original permit needs to be itemized here and discussed further down in the permit amendment summarizing notification/submission of the as-built report. It would also be helpful to list the added SC 21 regarding calcium fluoride (fluorspar) and the combination/supersedence of the original SC19-20 into SC22.

MDNR APCP Response: MDNR APCP has modified Special Condition 1 of the amendment to include Special Condition 17 of permit 092018-002 in the lists of special conditions being superseded by the amendment. MDNR APCP also added Special Condition 17 to this amendment to clarify that the requirements for as-built evaluation have been completed with the issuance of this permit. Special Conditions 19 and 20 of permit 092018-002 were not superseded by this amendment because they are still applicable to special conditions in permit 092018-002 that have not been superseded.

MDNR Northeast Regional Office – Comment #4 I noticed there is mention of stack parameter changes at the top of page 2 that refer to the memo - I think listing some of the specific changes such as the change in the baghouse stack height would be helpful, especially for staff checking to ensure equipment is built to spec.

MDNR APCP Response: The final stack release parameters for all emissions points can be found in the supporting AAQIA, Ambient Air Quality Impact Analysis (AAQIA) for Nucor Steel Sedalia, LLC-As-Built Air Quality Impact Analysis with an Increase in the Steel Tapping and Casting Rate
The following comments were submitted to the Air Pollution Control Program by EPA Region 7 on August 27, 2018.

**EPA – Comment #1** The Best Available Control Technology (BACT) emission limits at the Electric Arc Furnace (EAF)/Meltshop Stack in the original permit would allow for the potential of emission spikes that could cause or contribute to violations of the short-term National Ambient Air Quality Standards (NAAQS); in particular the 1-hour Sulfur Dioxide (SO$_2$) and Nitrogen Dioxide (NO$_2$) NAAQS. The draft amendment’s NAAQS modeling provided in the Ambient Air Quality Impact Analysis demonstrated NAAQS compliance using short-term emission rates (e.g., lb/hr). However, the 30-day rolling BACT limits for NO$_2$ and SO$_2$, along with the production limit, would allow for emissions above the modeled rates that ensures NAAQS compliance. Therefore, the draft amendment provides no guarantee that the emission rates used in the modeling would not be exceeded and cause or contribute to NAAQS violations. Additionally, the original permit has non-BACT PM$_{2.5}$ emission limits for the EAF/Meltshop Stack at an averaging rate period of lb/hr. While the EPA encourages this averaging time limit, it is not clear if the non-BACT limit for PM$_{2.5}$ (14.05 lb/hr) was the emissions rate used in the 24-hour PM$_{2.5}$ NAAQS compliance demonstration.

**MDNR APCP Response:** MDNR APCP appreciates EPA’s comment in this regard. A PM$_{2.5}$ emission rate of 14.05 lb/hr was used in the 24-hour PM$_{2.5}$ NAAQS compliance demonstration as part of original permit 092018-002. The NAAQS compliance demonstration for this amendment uses an emission rate 7.50 lb/hr. The emission rate is based on the grain loading BACT limit of 0.0024 gr/dscf set in Special Condition 6.A.3) of permit 092018-002 and flowrates from the baghouse of 599,000 dscfm (high flow) and 286,160 dscfm (low flow) assuming approximately 25% of the time is high flow and 75% of the time is low flow. Nucor is required to demonstrate compliance with the 14.05 lb/hr PM$_{2.5}$ limit by testing as required by Special Condition 16 of permit 092018-002. Test results have shown the PM$_{2.5}$ emission rate (3.3 lb/hr) is less than half the emission rate (7.50 lb/hr) used in the NAAQS compliance demonstration for this amendment.

**EPA – Comment #1 cont’d**

EPA rule and guidance recommends that the permitted emissions limit reflect the averaging period of each applicable NAAQS. Presented below are two examples of language in EPA rule and guidance:

EPA’s 2010 SO2 Modeling Guidance for PSD$^1$ states:

“Because compliance with the new SO2 NAAQS must be demonstrated on the basis of a 1-hour averaging period, the reviewing authority should ensure that the source’s PSD permit defines a maximum allowable hourly emissions limitation for SO2, regardless of whether it is derived from the BACT top-down approach or it is the result of an air-quality based emissions rate”

In addition, Section 9.2.3.1 of the *Guideline on Air Quality Models*$^2$ ("Appendix W" to 40 CFR Part 51) states:

“Emissions limits and resulting control requirements should be established to provide for compliance with each applicable NAAQS (and averaging period) and PSD increment.”
EPA Region 7 recommends the permit incorporate and set emissions or operational limitations at the EAF/Meltshop Stack that are at the averaging period of each applicable short-term NAAQS and demonstrate compliance with the NAAQS through air dispersion modeling.

**MDNR APCP Response:** MDNR APCP used 30 day rolling averages for the BACT limits of 0.5 lb SO₂/ton of steel and 0.3 lb NOₓ/ton of steel from the meltshop stack (EP-08). As part of the review for permit 092018-002, MDNR APCP modeled at elevated emission rates of 90 lb/hr and 54 lb/hr for SO₂ and NOₓ respectively. At the original MHDR of 60 tph and 0.5 and 0.3 lb/ton (30 day rolling averages), this equated to 30 and 18 lb/hr. Thus, the elevated rates were 3 times larger than what is expected on average. At 70 tons per hour which is used in this amendment, the factors decrease to 2.6 times larger; however, there is still a sizeable margin of compliance. The modeling at the elevated rates of 90 lb/hr and 54 lb/hr showed that for 1-hour NOₓ and 1-hour SO₂, that there were no NAAQS exceedances for either pollutant so a 1-hour limit was not used in the permit.